

Notice of Allowability

Application No.

10/674,208

Examiner

Thomas R. Peeso

Applicant(s)

LIN, DONG

Art Unit

2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application papers filed.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 24Nov2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

THOMAS R. PEESO
PRIMARY EXAMINER

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: Applicant has claimed uniquely distinct features in the instant invention which are not found in the prior art, either singularly or in combination. The present inventor has recognized that SYN bandwidth attacks can be effectively dealt with "downstream" by intercepting and identifying SYN packets in a "DDoS gateway," advantageously positioned at the edge of the network to be protected (e.g., one hop upstream from the protected link), and then, in accordance with the principles of the present invention, by queuing these intercepted SYN packets separately from other TCP packets. In particular, in accordance with one illustrative embodiment of the present invention, edge per-flow queuing is advantageously employed in a DDoS gateway in order to provide isolation among different protocols and isolation among individual TCP connections sharing the link. (Per-flow queuing techniques are familiar to those of ordinary skill in the art.) Moreover, in accordance with the principles of the present invention, SYN packets are queued separately from other TCP packets. Then, the egress scheduler of the DDoS gateway advantageously gives a fair share to each of the non-empty queues (which advantageously includes a separate queue for the SYN packets), thereby ensuring that the SYN packets (such as, for example, those generated as part of a SYN bandwidth attack) cannot overwhelm the egress link in the presence of other packets. Moreover, such a scheduling scheme advantageously interleaves 64 byte packets with data packets that are

typically larger, thereby reducing the likelihood of causing livelock at downstream TCP servers.

These features are not found or suggested in the prior art.

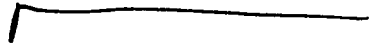
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R. Peeso whose telephone number is 571 272-3809. The examiner can normally be reached on Mon.-Fri, 7:00 a.m. to 3:30 p.m. The central fax number for the office is 571 273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron, can be reached on 571 272-3799.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the
Private PAIR system, contact the Electronic Business Center (EBC) at
866-217-9197 (toll-free).



Thomas R. Peeso
Primary Examiner

20 December 2006